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09/666,398	09/20/2000	Paul A. P. Kaufholz	PHN 17-643	8968

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EXAMINER

STORM, DONALD L

ART UNIT

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10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/666,398	KAUFHOLZ, PAUL A. P.
	Examiner Donald L. Storm	Art Unit 2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 09 December 2002.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-4 and 6-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-4 and 6-11 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Specification

2. The title is objected to because it is not sufficiently descriptive of the invention. A new title is required that is clearly indicative of the invention to which the claims are directed. See MPEP § 606.01.

Claim Informalities

3. The Examiner asks that the Applicant consider whether the phrase “both the at least two audio signals” in claim 1, at line 7, could possibly be confused with the “audio signal” from a microphone, in line 3? Would it be clearer to set forth the phrase as --both the at least two audio source signals--?

Similar language in claim 6 and claim 9 might also be confused with the microphone signal.

Claim Rejections - 35 USC § 102

Eriksson

4. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Eriksson [US Patent 5,033,082], already of record.

5. Regarding claim 11, Eriksson [at column 2, lines 46-51 and Figure items 58, 66, 92, 98] describes electrical cancellation of source 14 and speaker 30 from the microphone 36 signal 98 at speaker 34:

an audio input for receiving a signal [at column 2, lines 14-15, as summer 64 receives the output of microphone 36];

that is an audio signal from a microphone [at column 1, lines 58-59, as microphone 36 senses speech at location 24];

at least two audio inputs for receiving source signals [at column 2, lines 12-13, and at column 2, lines 24-27, as model 56 has input from microphone 20 and model 84 has speech input from microphone 38];

that are audio signals from respective audio sources [at column 1, lines 50-51 and lines 59-60 as microphone 20 senses noise from noise source 14 and microphone 38 senses noise and speech at location 28];

that are independent [at column 1, lines 47-55, as zone 12 is subject to noise from source 14 and a second zone 16 spaced from zone 12 is subject to noise from source 18 and includes speaking location 28 for person 30];

both the audio source signals contribute to the audio signal from the microphone [at column 2, lines 10-12 and column 2, lines 24-25, as noise from source 14 in the output 58 of microphone 36 and speech from person 30 in the output 58 of microphone 36];

the audio cancellation module canceling the at least two audio source signals from the audio signal from the microphone [at column 2, lines 46-51, as model 56 electrically canceled noise from noise source 14 and model 84 electrically canceled speech from person 30];

to produce a speech signal [at column 2, lines 51-53, as sum to speaker 34 contains speech from person 26].

Claim Rejections - 35 USC § 103

Eriksson and Houser

6. Claims 1-3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson [US Patent 5,033,082] in view of Houser et al. [US Patent 5,774,859], both already of record.

7. Claim 7 sets forth limitations similar to claim 11. Eriksson describes the limitations as indicated there. Eriksson also describes additional limitations as follows:

at least two audio source apparatuses [at column 1, lines 46-60, as noise source 14 sensed by microphone 36 at location 24 and person 30 and noise source 18 sensed by microphone 38 at location 28].

Eriksson [at column 1, lines 26-36] describes that canceling the noise is enables enjoyment of an entertainment system and communication to and from the vehicle by telephone. Eriksson, however does not explicitly describe speech recognition.

Houser [at column 17, lines 30-38] also describes a consumer entertainment system that includes a second input for noise cancellation, comprising:

an audio cancellation module [at column 6, lines 40-46, as a front end for noise cancellation];

including an audio input for receiving an audio signal from a microphone [at column 6, lines 35-40, as the transducer for transmitting electrical signals of spoken words from microphone];

and including an audio input for receiving a an audio signal from an audio source apparatus [at column 17, lines 30-32, as a second microphone receives audio from a television];

the audio cancellation module being operative [at column 6, lines 40-46, as a front end for noise cancellation];

to produce a speech signal by canceling the audio source signal from the microphone signal [at column 17, lines 32-36, as the spoken signal with the television audio signal subtracted from the microphone input data]; and

a speech recognizer for recognizing at least part of the speech signal [at column 6, lines 4-6, as which convert spoken audio into text or commands].

By examining the figure in Eriksson, an artisan would realize that Eriksson has duplicated the noise cancellation apparatus to cancel multiple noise sources. Accordingly, it would have been obvious to one of ordinary skill in the art of noise cancellation in speech recognition systems at the time of invention to incorporate Eriksson's concept of duplicating inputs and cancellation apparatuses in Houser's front end to deal with two noise sources and interfering speech because that would have provided a cleaner speech signal from the desired speaker for Houser's speech recognizer since interfering noises from two independent noise sources and from interfering speech could be canceled.

8. Claim 1 is set forth with limitations similar to claim 7. Eriksson and Houser describe and make obvious those limitations as indicated there.

9. Eriksson and Houser describe and make obvious dependent claims 8, 2, 3, and 6 using the same rationale as in the prior Office action (paper 8), because the current dependent claims set forth substantially the same additional limitations that were described at numbered sections 20, 22, 23, and 24.

Eriksson and Houser and Allen

10. Claims 4 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson [US Patent 5,033,082] in view of Houser et al. [US Patent 5,774,859] and further in view of Allen et al. [US Patent 5,485,515], all already of record.

11. Eriksson, Houser, and Allen describe and make obvious dependent claims 9, 10, and 4 using the same rationale as in the prior Office action (paper 8), because the current dependent claims set forth substantially the same additional limitations that were described at numbered sections 26, 27, and 28.

Eriksson and Linder

12. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson [US Patent 5,033,082] in view of Linder [International Publication WO 98/01956], both already of record.

13. Claim 7 sets forth limitations similar to claim 11. Eriksson describes the limitations as indicated there. Eriksson also describes additional limitations as follows:

at least two audio source apparatuses [at column 1, lines 46-60, as noise source 14 sensed by microphone 36 at location 24 and person 30 and noise source 18 sensed by microphone 38 at location 28].

Eriksson does not explicitly describe speech recognition. Eriksson [at column 1, lines 26-36], however, describes that canceling the noises enables enjoyment of an entertainment system and communication to and from a vehicle by telephone.

Linder [at page 1, lines 8-23] also describes canceling vehicle noise for better telephone communication, comprising:

an audio cancellation module [at page 6, lines 22-25, as a microprocessor that forms a processed signal with substantial information and negligible noise];

including an audio input for receiving an audio signal from a microphone [at page 3, line 29-page 4, line 1, as and information signals interface for receiving a voice signal, such as a microphone];

and including an audio input for receiving a an audio signal from an audio source apparatus [at page 4, lines 19-23, as an input interface for receiving an audible signal which is emitted by a noise generator, such as a second microphone];

the audio cancellation module being operative to produce a speech signal by canceling the audio source signal from the microphone signal [at page 6, line 22-page 7, line 2, as a microprocessor that forms a processed signal by canceling the noise component of the signal while substantially maintaining the voice signal received by the microphone]; and

a speech recognizer [at page 10, lines 5-9, as a speech recognition circuit];

for recognizing at least part of the speech signal [at page 1, lines 18-20, as recognizing voice commands understood from a user's voice message].

Linder [at page 13, lines 7-11] points out that in systems with multiple noise generators the noise cancellation apparatus and method may be duplicated. By examining the figure in Eriksson, an artisan would realize that duplicating the noise cancellation is what Eriksson has done to deal with multiple noise sources. Accordingly, it would have been obvious to one of ordinary skill in the art of noise cancellation in speech recognition systems at the time of invention to follow Linder's suggestion and incorporate Eriksson's concept of duplicate noise cancellation apparatuses in the presence of Eriksson's two noise sources and interfering speech because that would have produced a speech signal for Linder's speech recognizer from which the interfering noise from both noise sources and the interfering speaker had been canceled.

14. Claim 1 is set forth with limitations similar to claim 7. Eriksson and Linder describe and make obvious those limitations as indicated there.

Response to Arguments

15. The prior Office action, mailed September 9, 2002 (paper 8), objects to the title, abstract, and claims, and rejects claims under 35 USC § 112, § 102, and § 103. The Applicant's arguments and changes in AMENDMENT filed December 9, 2002 (paper 9) have been fully considered with the following results.

16. With respect to objection to the title, the changes entered by amendment are not sufficiently descriptive. The Applicant's amendments and remarks have been fully considered but the new title does not sufficiently describe the claimed and argued subject matter. Accordingly, the objection is maintained.

17. With respect to objection to the abstract, the changes entered by amendment remove the indicated grounds for objection. Accordingly, the objection is removed.

18. With respect to objection to the claims, the changes entered by amendment remove the indicated grounds for objection. Accordingly, the objection is removed.

19. With respect to rejections of claims under 35 USC § 112, the rejections no longer apply because the rejected claim has been canceled.

20. With respect to rejection of claims under 35 USC § 102 and § 103, citing Eriksson alone and in combination, the Applicant's arguments appear to be as follows:

The Applicant's argument appears to be that noise from Eriksson's source 18 is not found in the audio signal output from Eriksson's microphone 36. This argument is not persuasive because Eriksson [at column 1, lines 46-59] describes that microphone 36 senses noise and speech at location 24 in zone 12, in which zone speaker 32 delivers any noise of source 18 that was incompletely canceled and, therefore, sensed by microphone 38 in zone 16 with source 18. In addition, Eriksson [at column 2, lines 10-12 and column 2, lines 24-25] explicitly describes that the speech of person 30 also introduces noise into microphone 36 (via microphone 38 and speaker 32), and Eriksson explicitly describes that the speech of speaker 30 is canceled electrically from the audio signal output from Eriksson's microphone 36.

The Applicant's arguments have been fully considered but they are not persuasive. Accordingly, the rejections are maintained.

Conclusion

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

22. Any response to this action should be mailed to:

Box AF

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for formal communications; please mark "EXPEDITED PROCEDURE")

Or:

(703) 872-9314, (for informal or draft communications, and please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Art Unit 2654, whose telephone number is (703)305-3941. The examiner can normally be reached on weekdays between 8:00 AM and 4:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (703)305-4379. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office at telephone number (703)306-0377.

Donald L. Storm
Donald L. Storm
January 10, 2003

Marsha D. Banks-Harold
MARSHA D. BANKS-HAROLD
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